Clarkdale Sustainability Park
Executive Summary

Updated: December 24th, 2009

The Clarkdale Sustainability Park will fundamentally change the way our municipality meets the strictest carbon emission goals, how we are financed, which services we provide our citizens and how those services are delivered. By achieving this, the Clarkdale Sustainability Park project will change the dominant paradigm of municipal governance, presenting a new and logical model for a sustainable way of life for any and every community, worldwide.

In early 2007, the leadership and staff of the Town of Clarkdale, Arizona, came to a remarkable conclusion: the way municipalities had been sustaining themselves — financially, environmentally, and culturally — would no longer remain a dependent strategy. They recognized that the existing economic principles were about to face a dramatic conflict with the realities of resource depletion and cultural degradations concomitant with an overheated real estate market and reliance upon unsustainable practices. In short, Clarkdale felt that it was about to enter the era of a "new economy." At the same time, traditional municipal funding sources began to dry up. Revenues from sales taxes, gasoline taxes, and enterprise funds began to shrink, yet demand for services and the cost of those services continued to climb. In 2007, Clarkdale began to look for new ways to fund its municipal services, while continuing to provide a high quality of life for its citizens.

For the last several years, people have increasingly begun to realize that many of the practices which brought economic prosperity to our country, and our great state, were not sustainable for the future generations. The environmental, social, economic and cultural costs of depleting resources and polluting our planet were simply too high. Because of this, conventional wisdom has since embraced the knowledge that, if communities are to be healthy now and survive into the future, dramatic changes are called for. We believe we have found one path which responds to this awkward but real challenge. It is a pathway to a new economy that is sustainable, and in fact, enhances the quality and richness of our lives, while also improving the wellbeing of our environment. We believe that our plan, which is outlined below, will migrate out of necessity to other communities throughout the state and the nation. We believe that our plan will provide a practical model for other local governments.

THE CONCEPT

While industrial parks have been around for a long time, they have generally been a response to the need to isolate industrial activities from the general population of a city of town. The businesses in these parks have sometimes been interdependent, but usually their sole connection is that their activities are too intense for inclusion among other, less intense commercial businesses. The Clarkdale Sustainability Park (the Park) is an industrial park with a manifest difference in its occupants, its business model and its goals. From the beginning this Park has a distinct social, environmental, cultural and economic goal: to provide sustainability for the Town of Clarkdale. The Park will nurture state-of-the-art industries and act as an incubator of new sustainable businesses.

One possible energy producer in the park may be a plasma converter, also sometimes called a superplasmic arc or plasma gasifier. A plasma converter uses an ultra high temperature plasma arc (similar to lightning) to vaporize anything that passes through it. It works like the plasma torches commonly used in local metal shops to cut steel, but on a much larger scale. Almost anything can be fed into a plasma converter. Municipal solid waste, medical waste, and other industrial or hazardous wastes are common "feedstocks." During this process, the feedstock is instantly broken down to its elemental form. This is not a process of combustion – the waste is not burned. Instead, it is a process of molecular decomposition, converting the waste in to gas, a small amount of glasslike slag, and metal. The gas which is produced is a synthetic gas, often called "syngas". This syngas can be purified to yield pure hydrogen, as well as other gases. It could also be burned in generators yielding enough energy to run the converter, plus about thirty percent (30%) excess electricity for use by other Park facilities, or returned to the electrical grid. Depending upon how the converter is configured, precious metals and even nanocarbons (which are in high demand) can be salable by-products of the process.

Other integrated tenants in the Park will probably include:

- Algal and photobioreactor fuel facilities, which produce diesel fuel from algae and bacteria.
- Waste cooking oil biodiesel plants and equipment manufacturers.
- A wastewater purification system that will produce potable water from municipal wastewater.
- A state-of-the-art recycling center that sorts solid waste to remove economically recyclable materials before the rest is fed to the plasma converter.
- A one hundred (100) acre solar energy array that could produce more than enough electricity from the sun to power all of Clarkdale while delivering excess to the grid.
- An interpretive center that will serve to educate and foster other sustainable projects.
- A nature trail, day use areas, and community facilities that will enhance the cultural livelihood of Clarkdale and the Verde Valley region.
- Additional occupants which will be synergistic with the other tenants in fulfilling the concepts of promoting sustainability.

The Park will occupy about seven hundred (700) acres of land, and will be master planned to fit the concepts described above.

FINANCING

The first step in this project will be to secure property. Several parcels in and around Clarkdale may fit the requirements, but the one that stands out favorably for many reasons is the area around Peck's Lake. This particular property is currently owned by Freeport McMoRan Copper and Gold, an international mining company with long roots in Clarkdale.

Once land for the Park site has been secured, the next step will be a Feasibility Study, expected to cost around two hundred thousand dollars ($200,000). The costs of this study will

likely be paid by an Economic Development Grant from the U.S. Department of Commerce. This study will provide answers to many of our questions, and provide us with a framework and guide for development of the Park.

Additional funding for initial operating expenses and staffing will likely come from grants and/or bonding.

BENEFITS TO CLARKDALE

The Clarkdale Sustainability Park will forever change the way the Town of Clarkdale achieves its social solutions. The Park offers realistic answers to methods of, providing economic development and sustainability, and improving our water and wastewater supply and treatment. It will, to a great extent, insulate the Town's economy from fluctuating economic cycles which take place at the state level, thus allowing a more stable, continuous path of economic and cultural growth and prosperity. New means of treating wastewater could help the Town delay, or even eliminate the need for expensive new water resource acquisition. Town revenues from operation of the plasma converter, as well as rents from tenant facilities, transaction privilege taxes, franchise fees and general economic development, are expected to net between five hundred thousand dollars ($500,000) and one million dollars ($1,000,000) per year.

CONCLUSION

The Plan, as outlined above, is preliminary and conceptual. As such, it must be allowed to, and is expected to, adapt during its developmental stages in response to changing conditions, and unforeseen challenges and opportunities. This process will be as evolutionary as it is revolutionary. The rewards for hard work, good planning and adaptive management of the project cannot be overstated. The Clarkdale Sustainability Park will forever change how Clarkdale functions economically and it will redefine the relationship the Town has with its citizens, its culture and its environment. This project will create a new paradigm of municipal governance and become a model for sustainable communities throughout the country.

For a more detailed discussion of the project, please visit the Town's web site at http://www.clarkdale.az.us, and refer to the Clarkdale Sustainability Park White Paper, or contact Town Manager, Gayle Mabery (Gayle.Mabery@clarkdale.az.gov), Community Development Director Sherry Bailey (Sherry.Bailey@clarkdale.az.gov) or Mayor Doug Von Gausig (dougvg@commspeed.net).